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| EXAMINER |
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MATTHEWS, ANDRE L

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| ART UNIT | PAPER NUMBER |
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2629

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07/20/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/598,643 | Applicant(s) DE ZWART ET AL. | |
| | Examiner ANDRE MATTHEWS | Art Unit 2629 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05/03/2011.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woodgate (US 5, 808,792) in view of Allen (US 6,888,540).

3. Regarding claims 1 and 10, Woodgate teaches a multiview display device (600) **(display 2)** for displaying multiple views, the multiple views having respective viewing angles related to an object to be displayed, the display device comprising: optical device(**Fig.7-8, teaches the light generating sources 41, 50, 54, and 57 and lenses 47, 52, 56, and 59**), configured to display multiple viewing cones (**figs. 2-5; lobes -1, 0, and +1**), a first cone (**lobe 0**)of the multiple viewing cones comprises different views so that a different view is observed by a right eye and a left eye of a viewer of the multiview display device, the different views of the first cone(**Col. 5 lines 39-62**) having an angular distribution relative to the display device(**Fig. 3**) ; and providing the optical means with sets of image data corresponding to the respective views (**Fig. 4** **respective views A-G**), whereby the sets of image data are provided such that (**Col 5 lines 39-60; teaches that windows are updated to show the respective Right and Left views of the image to form a complete autostereoscopic image**): the angular distribution has a first part of adjacent views with increasing viewing angle and a second

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part of adjacent views with decreasing viewing angle(**Figs. 3-5, windows 1-3, as shown in Fig. 3 the convergence point B' would be the increase viewing angle and the edge points of A' and C' would be the decreased viewing angles**) ; and the angular distribution has a first one of the views in between a maximum view which corresponds to a maximum viewing angle and a minimum view which corresponds to a minimum viewing angle (**Figs. 3-5, windows 1-3 views A-G**), and although Woodgate teaches a buffer and controller means (which could be considered a driver means) for determining the correct viewing data fig. 11, he does not explicitly teach it is done by a processor configured to provide the optical device with image data.

However in the same field providing an autostereoscopic display and driving method Allen teaches an autostereoscopic processor (**display driver components**) where the graphics accelerator, buffer (**43**) and the display driver (**56**), deliver image data to the display 58.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the autostereoscopic display and driving method of viewing angles taught by Woodgate and the autostereoscopic driving method taught by Allen. This combination would provide a display in which the observer has a greatly enhanced freedom of lateral movement by updating image representing different stereoscopic viewing directions as taught by Woodgate (**Col. 2 lines 56-64**).

4. Regarding claim 2, Woodgate teaches whereby the first part of adjacent views comprises a first number of views and the second part comprises a

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second number of views, a difference between the first number and the second number being minimal (**Figs. 3-5, windows 1-3 views A-G, lobes -1, 0, and +1**).

5. Regarding claim 3, Woodgate teaches whereby the first part of adjacent views comprises a first number of views and the second part comprises a second number of views, the first number being higher than the second number but being lower than four times the second number(**Figs. 3-5, windows 1-3 views A-G, lobes -1, 0, and +1**).

6. Regarding claim 4, Woodgate teaches whereby the first part of adjacent views comprises a first number of views and the second part comprises a second number of views, the first number being higher than the second number, whereby a portion of the sets of image data corresponding to one or more of the adjacent views with decreasing viewing angle has been blurred (**Col. 11 lines 14-36**).

7. Regarding claim 5, Woodgate teaches whereby a portion of the sets of image data is blurred, the amount of blur being applied to the adjacent views being related to the viewing angle (**Col. 11 lines 14-36**).

8. Regarding claim 6, Woodgate teaches whereby a first one of the sets of image data corresponding to a second one of the views which belongs to the first, also corresponds to a third one of the views which belongs to the second part(**Figs. 3-5, windows 1-3 views A-G, lobes -1, 0, and +1**).

9. Regarding claim 7, Woodgate teaches whereby providing the sets of image data such that the first one of the multiple viewing cones has the angular distribution at a first moment in time and has a further angular distribution at a second moment in time, the

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further angular distribution being different from the angular distribution (**Figs. 3-5, windows 1-3 views A-G, lobes -1, 0, and +1**) and Allen teaches a processor configured to supply image data (**display driver components**) where the **graphics accelerator, buffer (43) and the display driver (56)**.

10. Regarding claim 8, Woodgate teaches comprising a shot-cut detector being arranged in order to switch between the angular distribution and the further angular distribution on basis of a detected shot-cut in the image data (**Figs. 3-5, windows 1-3 views A-G, lobes -1, 0, and +1, Fig. 11 and the respective description teaches a tracking system which determines the available viewing angle of the observer and adjust accordingly.**) and Allen teaches a processor configured to supply image data (**display driver components**) where the **graphics accelerator, buffer (43) and the display driver (56)**.

11. Regarding claim 9, Woodgate teaches comprising further optical device configured to display further viewing cones(**Fig.7-8, teaches the light generating sources 41, 50, 54, and 57 and lenses 47, 52, 56, and 59**), a second one of the further multiple viewing cones having a second angular distribution of the views relative to the display device being substantially different from the angular distribution(**Figs. 3-5, windows 1-3 views A-G, lobes -1, 0, and +1**).

12. Regarding claim 11, Woodgate teaches a multiview display device for displaying multiple views, the multiple views having respective viewing angles related to an object to be displayed, the display device comprising: optical device configured to display (**Fig.7-8, teaches the light generating sources 41, 50, 54, and 57 and lenses 47, 52,**

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56, and 59), multiple viewing cones (figs. 2-5; lobes -1, 0, and +1), a first cone (lobe 0) of the multiple viewing cones comprises different views so that a different view is observed by a right eye and a left eye of a viewer of the multiview display device, the different views of the first cone (lobe 0) having an angular distribution of the views relative to the display device (Fig. 3) ; and providing the optical means with sets of image data corresponding to the respective views (Fig. 4 respective views A-G), whereby the sets of image data are provided such that (Col 5 lines 39-60; teaches that windows are updated to show the respective Right and Left views of the image to form a complete autostereoscopic image): the angular distribution has a first part of adjacent views with increasing viewing angle and a second part of adjacent views with decreasing viewing angle (Figs. 3-5, windows 1-3, as shown in Fig. 3 the convergence point B' would be the increase viewing angle and the edge points of A' and C' would be the decreased viewing angles) ; and the angular distribution (630) has a first one of the views in between a maximum view which corresponds to a maximum viewing angle and a minimum view which corresponds to a minimum viewing angle (Figs. 3-5, windows 1-3 views A-G), and although Woodgate teaches a buffer and controller means (which could be considered a driver means) for determining the correct viewing data fig. 11, he does not explicitly teach it is done by a driving means driving means that receives image data loaded from a computer program product processed by a computer arrangement comprising a processor and a memory.

However in the same field providing an autostereoscopic display and driving method Allen teaches an autostereoscopic display driver that receives image data

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loaded from a computer program product processed by a computer arrangement comprising a processor, a memory, and a driver **(where the graphics accelerator, buffer (43) and the display driver (56), deliver the data to the display 58, memory 41).**

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the autostereoscopic display and driving method of viewing angles taught by Woodgate and the autostereoscopic driving method taught by Allen. This combination would provide a display in which the observer has a greatly enhanced freedom of lateral movement by updating image representing different stereoscopic viewing directions as taught by Woodgate **(Col. 2 lines 56-64).**

Response to Arguments

13. Applicant's arguments filed 05/03/2011 have been fully considered but they are not persuasive. On pages 10-13 of the remarks submitted the applicant has argued that the combination of Woodgate and Allen does not disclose or suggest the present invention. Specifically the applicant argued that Woodgate teaches viewing windows 1, 2, 3, of viewing lobes -1, 0, +1 and does not teach a cone with different views having an angular distribution with both adjacent increasing and adjacent decreasing viewing angles. The examiner respectfully disagrees.

14. When looking at the reference Woodgate, he does indeed teach the viewing windows 1, 2, 3, of separate viewing lobes -1, 0, +1 that each show images A', B', C' that are viewpoint corrected zones from the pixels ABC. However Woodgate also teaches that Col. 5 lines 1-25, that the center point of each lenticule is with the

respective B pixel and the images from ABC are imaged through these lenticules to provide the images as lobes -1, 0, +1, that are made of these windows 1,2,3 which are observed as viewing cones. Woodgate further defines these windows as the widest part of each cone and that each window occurs at a predetermined distance from the display device, where these windows are contiguous with one another to define a viewing angle. Also in Col. 5 lines 39-61 Woodgate describes Fig. 4 and how a user can observe an image as they cross from one boundary of a window into another boundary of a window (i.e. 1, 2, 3) within a lobe (i.e. -1, 0, +1). Therefore because the images are contiguous and the total image can be viewed even as the user crosses a boundary into another window it would be clear that the viewing angle at the boundaries of the window would be less concentrated (i.e. decreased) than the viewing angle in the center of the window (i.e. increased), so that the images could blend appropriately to portray the correct autostereoscopic image.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDRE MATTHEWS whose telephone number is (571)270-5806. The examiner can normally be reached on Monday-Friday alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on 571-272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Amr Awad/

ANDRE MATTHEWS

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Supervisory Patent Examiner, Art Unit 2629

Examiner
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